

(19) World Intellectual Property Organization  
International Bureau



10/507287

(43) International Publication Date  
18 September 2003 (18.09.2003)

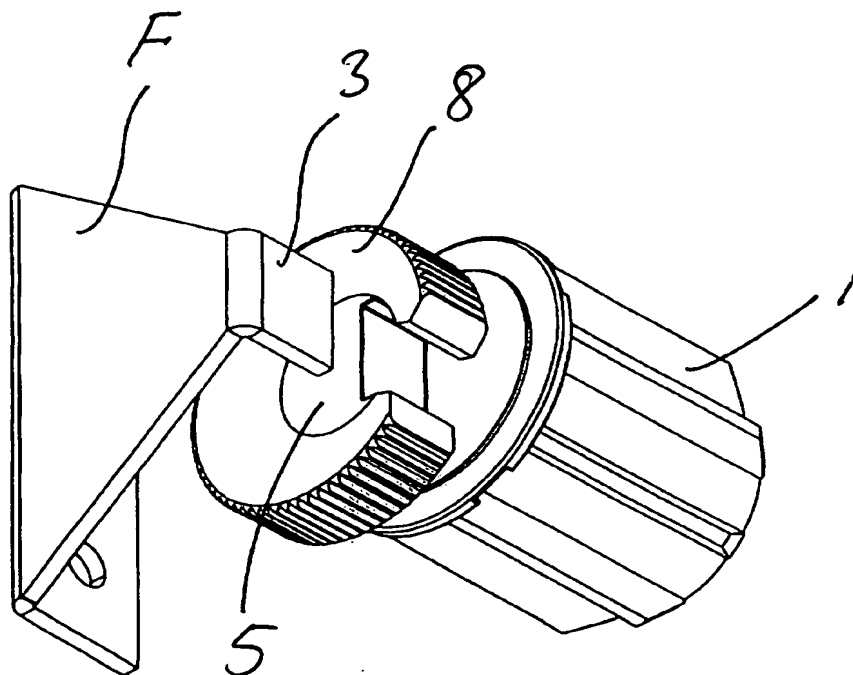
PCT

(10) International Publication Number  
WO 03/076757 A1

- (51) International Patent Classification<sup>7</sup>: E06B 9/50
- (21) International Application Number: PCT/DK03/00152
- (22) International Filing Date: 12 March 2003 (12.03.2003)
- (25) Filing Language: Danish
- (26) Publication Language: English
- (30) Priority Data:  
PA 2002 00374 12 March 2002 (12.03.2002) DK
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- (81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— with international search report

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(54) Title: A MOUNTING DEVICE FOR ROLLER BLINDS



(57) Abstract: A roller blind tube with fabric wound around it is mounted in brackets that have spade-shaped elements (3) provided in the axis. These elements cooperate with oblong holes (2) in terminating plugs (1) in the roller blind tube. According to the invention the oblong holes (2) are opened by rotating eccentrically built rings (8). Hereby the roller blind may be hung on the brackets, whereupon the rings (8) are closed again.

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

A mounting device for roller blinds.

- 5 The invention relates to a mounting device for roller blinds comprising a terminating plug for a roller blind tube, said plug having an oblong hole for interaction with a spade-shaped element on a mounting bracket, in which at least one longer side of the hole being shaped as a plane surface parallel to the axis at a distance from said axis corresponding to half the thickness of the spade-shaped element, and that there is  
10 provided a lock, which is constituted of the inside of a slit circular ring, rotatable to locking around said spade-shaped element upon mounting.

- Several conditions have to be fulfilled when mounting roller blinds with a built-in spring. One end must be prevented from rotating, and the roller blind mounting  
15 bracket must be fitted as closely as possible to the upper delimitation of a niche or cassette. Traditionally the rotation is prevented by means of a spade-shaped element, which projects axially into or out of the roller blind tube, interacting with a hole that surrounds the flat element in a suitable manner. In another type of roller blinds having exterior winding and unwinding both ends have to rotate. This is in practice obtained  
20 by using spade-shaped elements in both brackets, which may be identical, and the rotation is assured by means of a bearing built into the terminating plugs fitted to the roller blind tube. The length of the roller bearing tube should correspond to the width of the niche, and hence the mounting is traditionally performed by mounting one end of the tube in one of the brackets, whereupon a projecting spade-shaped element is  
25 pushed horizontally into a slit in the other bracket, whereupon it is swung down to be supported and held in the centre of the bracket. The force of gravity ensures that this end remains in the bracket. Conditions are not the same, if the spade-shaped element is carried by the bracket and has to interact with a hole in one end of the roller blind tube. In this situation it is necessary that both ends are fitted with brackets, and that  
30 one of them is subsequently fixed by screws. It is a complicated mounting, which is unsuitable if corrections have to be performed on the roller blind, that may necessitate its removal once again.

Known mounting brackets may have a horizontal as well as a vertical spade-shaped element. It is not possible to transfer the slit in the bracket to one of the roller blind, because this slit would not have a suitable orientation, whereby a sideways pull in the roller blind would be able to pull it loose. In case space were made available in the end of the roller blind for a construction so that the roller blind were retained by means of the force of gravity, it must then be lifted so much with respect to the bracket, that both brackets have to be lowered during mounting (to preserve the horizontal axis of the roller blind), and hence the roller blind is not fitted as closely as possible to the upper delimitation as possible. Furthermore it would not be possible to use a mounting bracket having a vertical spade-shaped element.

According to the invention a solution to this problem has been provided, in that it has been realised that the hole that is to interact with the spade-shaped element does not need to have a precisely rectangular cross section. The construction is hence particular in that the ring is carried by a cylindrical part of the plug that is fitted excentrically with respect to the axis of the tube, and the other long side of the hole is constituted by the inner surface of the ring. By means of the slit an opening is created, in order that the end of the roller blind may be pushed over the spade-shaped element, and by rotating the ring the opening is closed again. The turning of the ring may be eased by providing it with ridges on its circumference. Both horizontal and vertical spade-shaped elements may be used.

According to a preferred embodiment of the invention the shorter sides of the hole are disposed as cuts in the cylinder which carries the ring, with a distance between them corresponding to the width of the spade-shaped element. This construction causes the oblong hole to fit closely around the spade-shaped element when closed.

A further advantageous embodiment is particular in that the ring has an outer diameter corresponding to the outer diameter of the roller blind, that it is excentric, with the slit at the thinnest location, and that the edge parts of the slit have sufficient strength to carry the weight of half the roller blind inclusive of the fabric. The advantage of this embodiment lies in particular in that the ring is rotated out of the cylindrical surface and hangs down in certain orientations, when the mounting is to take place. Partly this

demonstrates that the roller blind bracket is unlocked, it prevents operation of the roller blind, and it eases the rotation of the ring to its locked position. This embodiment may in a simple manner be used for both horizontal and vertical spade-shaped elements on mounting brackets. Hereby it is ensured that it is unnecessary to  
5 support the corresponding part of the roller blind during the mounting and until the ring is in its locked position, but the roller blind may be carried fully by the brackets, even during the not yet quite finished mounting operation.

A further advantageous embodiment is particular in that the ring has an outer diameter  
10 corresponding to the terminating plug, while the terminating plug has been fastened to a roller blind tube by means of a diameter conversion ring. By means of this construction the same mounting device may be used for tubes of different diameters, by just inserting a diameter conversion ring or a tube between the terminating plug  
15 terminating plug that ensures the rotation of the roller blind.

A use of the mounting device is particular in that two roller blind brackets are fitted at a distance that corresponds to the length of a roller blind tube with a sheet of fabric wound around it and with terminating plugs, that the rings are rotated in a position  
20 such that the oblong holes are opened, that the roller blind tube is lifted to interact with the spade-shaped elements at both ends by means of the opened holes, that the rings are again rotated to close the holes and hence ensure the terminating plugs against turning and to retain the roller blind.

25 The invention will be further described with reference to the drawing, in which

Fig. 1 shows a plug for use in a roller blind tube for a vertical spade-shaped element with an embodiment of the invention in a closed condition,

30 Fig. 2 shows the same, only in an open position,

Fig. 3 shows a plug for use in a roller blind tube for a vertical spade-shaped element with the same embodiment of the invention in a closed condition,

Fig. 4 shows the same, only in an open position,

Fig. 5 is a perspective drawing of a roller blind bracket and an opened locking ring  
5 according to the invention, and

Fig. 6 shows the same components, but with a closed locking ring.

In Fig. 1 is shown the end of a plug 1 for use at the right end of a roller blind, in  
10 which plug there is an oblong hole 2 that has to enclose the spade-shaped element 3  
that is a part of a bracket. This hole is delimited by the straight longer side 4 which is  
is shaped as a surface in a cylindrical part 5 provided on the plug, two shorter sides 6,  
7, which are perpendicular to the surface 4, and the inside part of a ring 8. The ring is  
excentric, whereby it has obtained a varying thickness along its circumference. The  
15 ring 8 is carried by the cylindrical part 5 of the plug, which is excentric with respect to  
the axis of the roller blind with the same axis displacement as the excentricity of the  
ring. The ring is provided with ridges in the edge (not shown), in order that it may be  
grabbed and rotated. The ring is internally provided with a circular tounge that is  
shorter than the corresponding groove in the cylindrical part of the plug, so that the  
20 rotation of the ring with respect to the plug, and hence the roller blind, is limited to a  
specific angular interval.

In Fig. 2 the ring 8 is seen rotated out with respect to the plug 1, such that the oblong  
hole 2 is opened. Hereby the end of the roller blind may be held against a vertical  
25 spade-shaped element 3. The ring is turned counterclockwise around the cylinder 5  
until the condition shown in Fig. 1 is obtained.

Correspondingly, in Fig. 3 the same construction is shown, consisting of the plug 1,  
the cylindrical part 5 with the recess 6, 4, 7 and the surrounding excentric ring 8. The  
30 end of the roller blind tube is carried by a horizontal spade-shaped element 3', which is  
a part of a bracket.

In Fig. 4 the ring 8 is seen rotated out with respect to the plug 1. In this position the roller blind may be lifted and pushed to the right, in order that the thin part S of the ring 8 rests on the spade-shaped element 3'. Subsequently the ring 8 is turned clockwise around the cylinder 5, until the condition shown in Fig. 3 is obtained.

5

The plug is shown as used in the right-hand end of a roller blind, but it is obvious that precisely the same construction may be used in the left-hand end. In this case the directions of rotation for the ring 8 seen relative to the left end of the roller blind shall be reversed for locking.

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In Fig. 5 is seen a roller blind bracket F with a spade-shaped element 3, which is shown ready to be screwed to a vertical constructional element. The ring 8 on the cylindrical and excentric part 5 of the terminating plug 1 is rotated into a position corresponding to Fig. 2, but which is in the present instance used in the left-hand side of the roller blind, and the direction of mounting is in this case from the inside and out. It will be seen that the end of the roller blind is hanging very well in the hook that is created by the thin end S of the ring 8. In Fig. 6 is shown that the oblong hole 2 is closed around the spade-shaped element 3 in a position that corresponds to Fig. 1. In order to improve clarity the end of the roller blind has been pulled out from the

15

20 bracket in the drawing.

## PATENT CLAIMS

1. A mounting device for roller blinds comprising a terminating plug (1) for a roller blind tube, said plug having an oblong hole (2) for interaction with a spade-shaped element (3) on a mounting bracket (F), in which at least one longer side (4) of the hole being shaped as a plane surface parallel to the axis at a distance from said axis corresponding to half the thickness of the spade-shaped element (3), and that there is provided a lock, which is constituted of the inside of a slit circular ring (8), rotatable to locking around said spade-shaped element (3) upon mounting,
- 10 c h a r a c t e r i s e d i n that the ring (8) is carried by a cylindrical part (5) of the terminating plug (1) that is fitted excentrically with respect to the axis of the tube, and where the other longer side of the hole is constituted by the inner surface of the ring (8).
- 15 2. A mounting device according to claim 1, c h a r a c t e r i s e d i n that the shorter sides (6, 7) of the hole are disposed as cuts in the cylinder (5) which carries the ring (8), with a distance between them corresponding to the width of the spade-shaped element (3).
- 20 3. A mounting device according to claim 1, c h a r a c t e r i s e d i n that the ring (8) has an outer diameter corresponding to the outer diameter of the roller blind, that it is excentric, with the slit at the thinnest location, and that the edge parts (S) of the slit have sufficient strength to carry the weight of half the roller blind inclusive of the fabric.
- 25 4. A mounting device according to any of the preceding claims, c h a r a c t e r i s e d i n that the ring (8) is internally provided with a circular tounge that is shorter than a corresponding groove in the cylindrical surface of the terminating plug (5).



5. A mounting device according to claim 1, characterised in that the ring (8) has an outer diameter corresponding to the terminating plug (1), while the terminating plug is fastened to a roller blind tube by means of a diameter conversion ring.

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6. A use of a mounting device according to claim 4, characterised in that two roller blind brackets (F) are fitted with a distance that corresponds to the length of a roller blind tube with fabric wound around it and with terminating plugs (1), that the rings (8) are rotated into a position such that the oblong holes (2) are opened, that the roller blind tube is lifted to interact with the spade-shaped elements (3) at both ends by means of the opened holes (2), that the rings (8) are again rotated to close the holes (2) and hence ensure the end plugs (1) against turning and to retain the roller blind.

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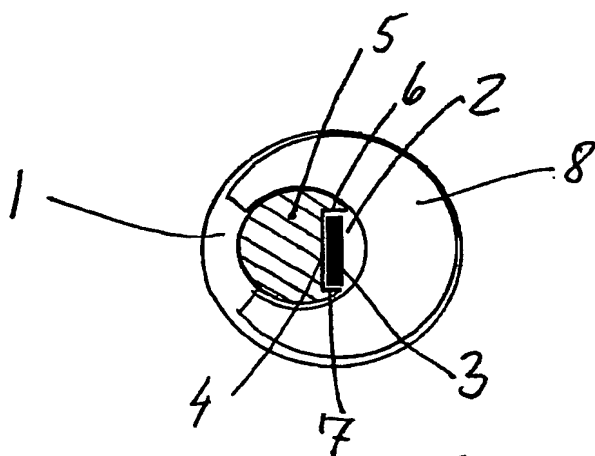


Fig. 1

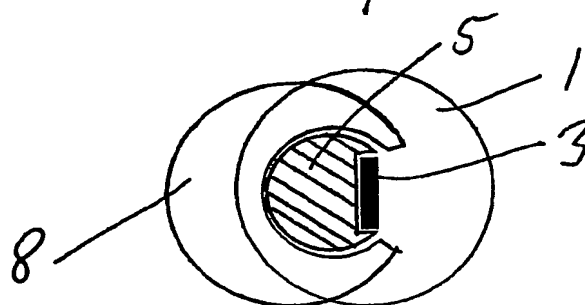


Fig. 2

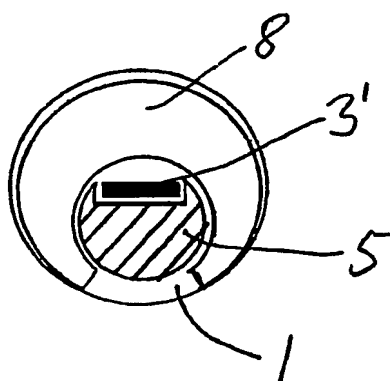


Fig. 3

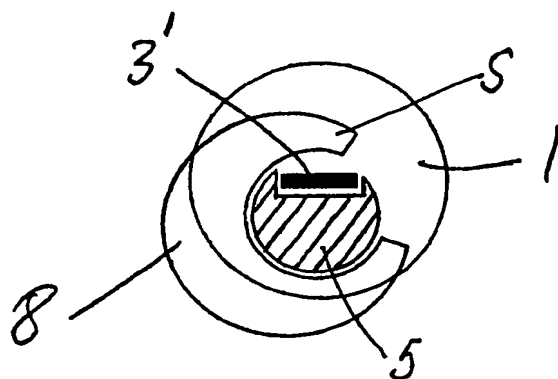


Fig. 4

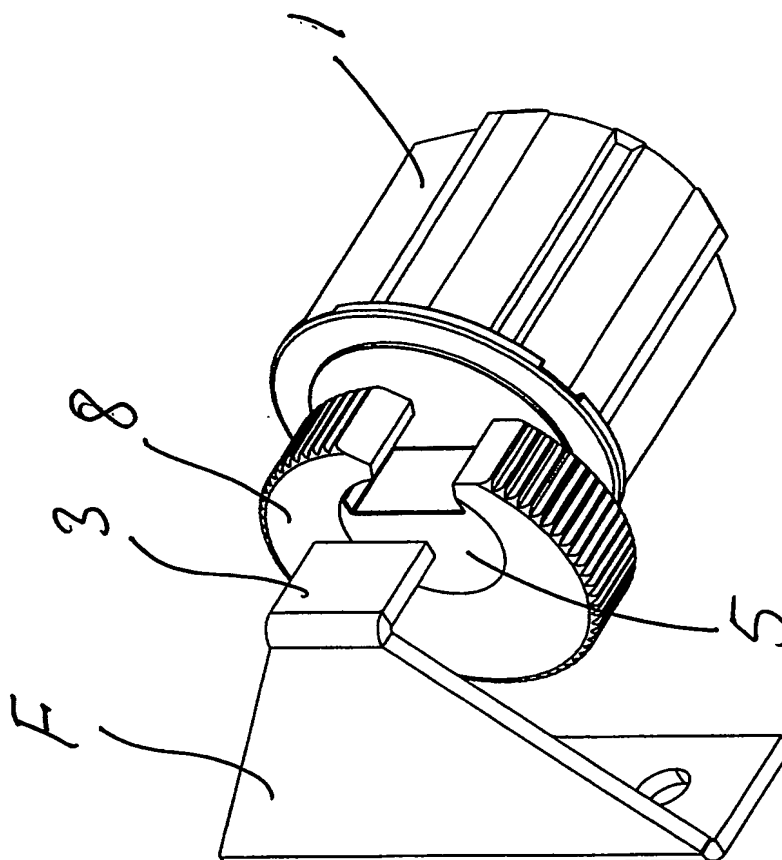


Fig. 5

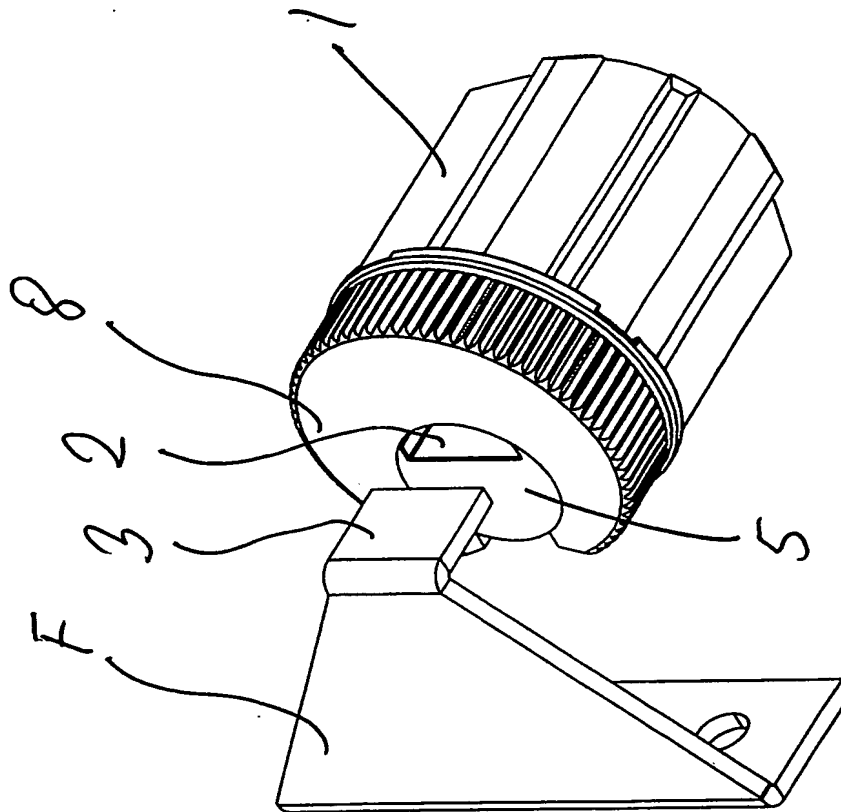


Fig. 6

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 03/00152

**A. CLASSIFICATION OF SUBJECT MATTER**

**IPC7: E06B 9/50**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

**IPC7: E06B**

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

**SE,DK,FI,N0 classes as above**

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**EPO-INTERNAL**

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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A	NL 8400103 A (HUNTER DOUGLAS INDUSTRIES B.V.), 1 August 1985 (01.08.85) -- -----	1-6

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

\* Special categories of cited documents:

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Date of the actual completion of the international search

**12 June 2003**

Date of mailing of the international search report

**16 -06- 2003**

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**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

29/04/03

International application No.

PCT/DK 03/00152

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